Aeronautical Systems Center

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Acquisition ESOH Programmatic Risk Tools

(10 May 11)

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- **ASC Mission**
  - **Deliver affordable, sustainable and effective aerospace capabilities to US and International forces - on time, on cost**
- **ASC Strategic Principle**
  - **Dominant Air Power: Design for tomorrow… Deliver today**
- **ASC Strategic Priorities**
  - **Successfully Restructure Our Organization**
  - **Implement Integrated Life Cycle Management**
  - **Develop and Care for Our People**
  - **Improve Our Business Processes**

ASC ESOH Risk Management

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Environmental & Health Risk Mngt

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- **Institutionalize ESOH into Acquisition Process**
  - **AF Acquisition Strategy Panel (ASP) Member**
    - **ESOH Strategy**
  - **ESOH Council chaired by ASC/CV**
- **Institutionalize ESOH into Sys Engineering**
  - **Support Directorates, Divisions, Branches, SPOs**
    - **Assess impacts of updates to laws/regulations**
    - **Provide expertise for NEPA, PESHE, Deicing, Occ. Health**
    - **Training Courses, tool set, cross-feed**
  - **Material Substitution Projects for WS & GOCOs**
    - **Technology Investment**
    - **Occupational Health**

Program Manager ESOH Responsibilities

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- **Identify ESOH considerations early**
- **Structured risk management/acceptance**
- **Integrate ESOH into acquisition strategy**
- **Integrate ESOH into systems engineering**
- **Minimized ESOH risk across life cycle**
- **Provide system specific NEPA analyses data**

A safety manager with the Louisiana National Guard's 159th Fighter Wing, describes how to inspect an augmenter nozzle on an F-15 Fighter aircraft

ASC Acquisition ESOH Tools

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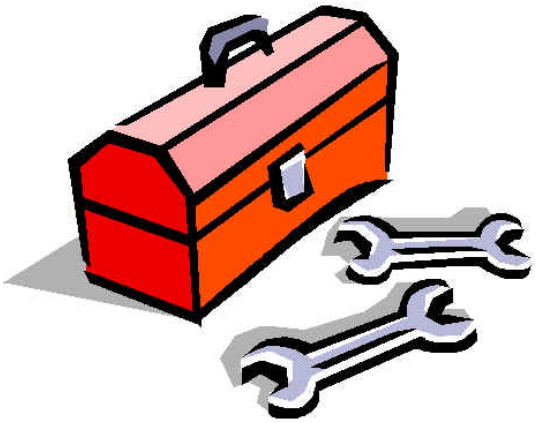

- ESOH Programmatic Risk Model
  - Lessons Learned
- PESHE Templates
  - PESHE Checklist
- Other ASC Acquisition ESOH Tools
  - Environmental Circular
  - NEPA Circular
    - NEPA Compliance Checklist
  - Environmental criteria for pre-award documents
  - Acquisition ESOH Training

Reduce ESOH risk through integration into the acquisition strategy & systems engineering

ASC ESOH Programmatic Risk Model

- **Assists PMs, ESOH Practitioners & Systems Engineers**
  - **Manage ESOH over life cycle**
  - **Gauge effectiveness of ESOH management program**
  - **Integrate ESOH in acquisition strategy**
  - **Integrate ESOH in systems engineering**
  - **Provide data for the PESHE**

ESOH Programmatic Risk Toolset Components

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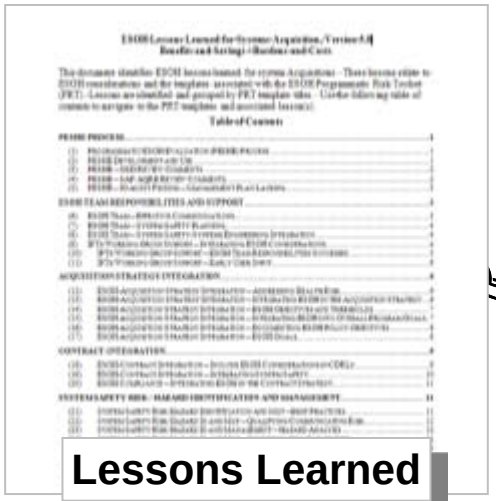
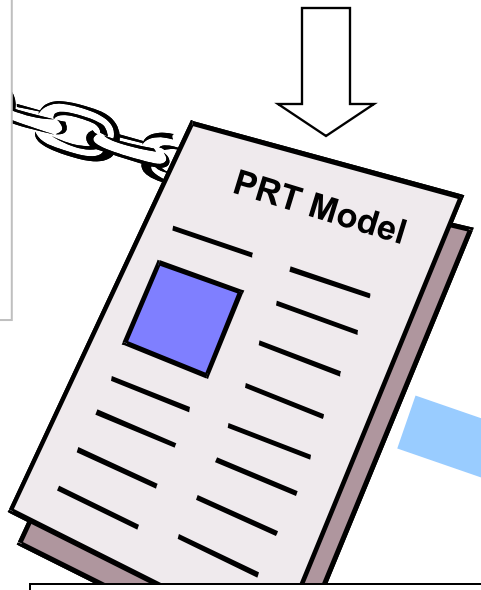
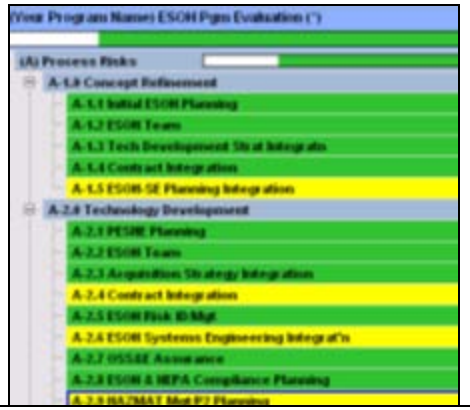


Lessons Learned

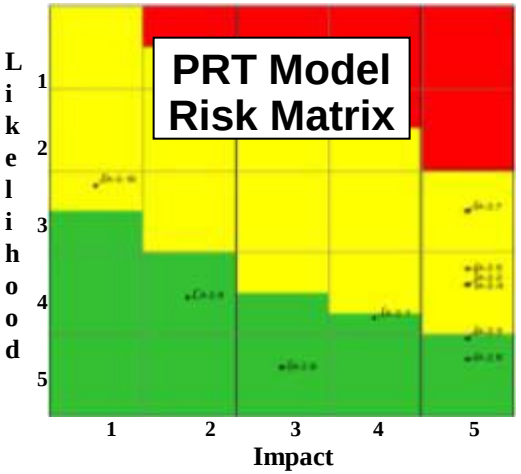
Responses to Questions



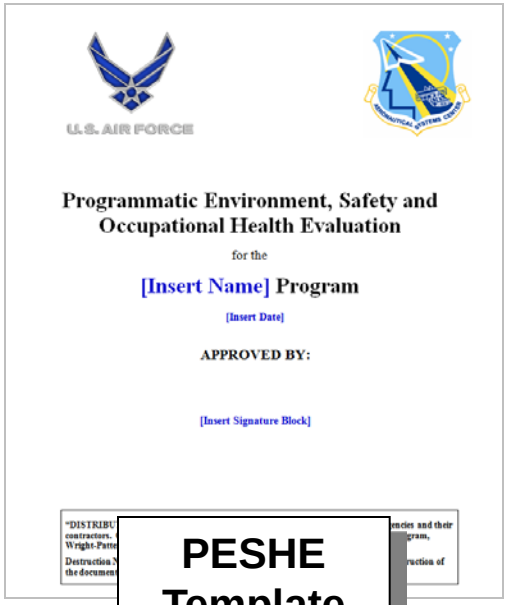
- Pgm Risk ID/Manager
- Data Repository



Programmatic Evaluation Scorecard



PRT Model Risk Matrix



PESHE Template

Completing the PRT Model does *NOT* produce a PESHE

ESOH PRT Model
Work Breakdown Structure

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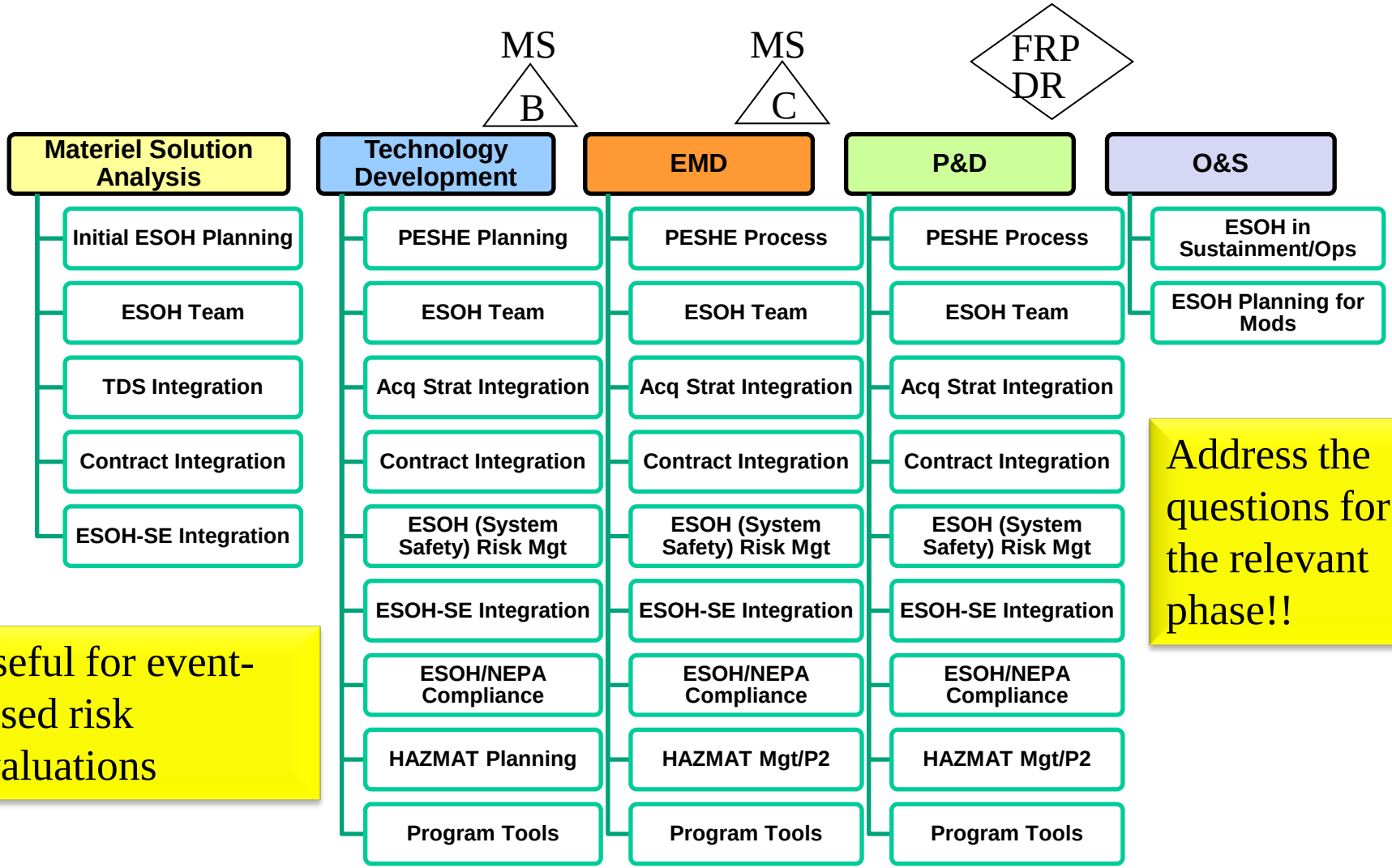
Has a Program developed an effective ESOH risk management approach?



Useful for event-based risk evaluations

Address the questions for the relevant phase!!

ESOH PRT Model Example Questions for TD

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A-6 PESHE Planning

A-6.1 Has the PM developed an initial PESHE to identify the ESOH risk management approach per MIL-STD-882, a strategy for integrating ESOH considerations into SE, ESOH responsibilities, risk acceptance authorities, a method for tracking progress and the NEPA compliance schedule? (DoD ESOH Management Evaluation Criteria)

A-6.2 Has the Program Office documented the initial ESOH hazards/risks and management actions in the PESHE, i.e., identified and assessed compliance requirements and hazards/risks, including hazardous materials and the results from the DoD ESOH Management Evaluation Criteria? (AFI 63-101, 3.49.3, 3.49.7)

A-7 ESOH Team Responsibilities & Support

A-7.1 Have ESOH responsibilities (govt and contract) been assigned and effectively implemented to ensure ESOH criteria, requirements and risks are being managed and integrated into Program contractor processes and products? (DoD ESOH Risk Mgt Evaluation Criteria)

A-7.2 Where appropriate, has a System Safety Group and/or ESOH been established, chartered and manned to achieve Program integrate ESOH across disciplines? (AFI 91-202, 9.3.5.11 and 9.4)

A-8 Acquisition Strategy Integration

A-8.1 Does the acquisition strategy (Life Cycle Management Plan or equivalent document) include a summary of the ESOH integration strategy, criteria, requirements and risks documented in the PESHE? (DoDI 5000.02, E 6a; AFI 63-101,3.39.3.4.32; DoD ESOH Risk Mgt Evaluation Criteria)

A-8.2 Have significant ESOH considerations such as hazard-related and programmatic risks, NEPA compliance, PESHE status, ESOH compliance and hazardous material management been addressed at strategy sessions and considered for inclusion in the Acquisition Strategy Panel briefing? (ASC ASP process)

A-9 Contract Integration

A-9.1 Has the Program Office integrated ESOH criteria, requirements, and the initial ESOH risk assessment into the system specification, source selection planning process and resulting contract solicitation documents being developed for EMD? (DoD ESOH Risk Mgt Evaluation Criteria)

A-9.2 Has the Program Office tailored the Contract Data Requirements List and accompanying Data Item Descriptions to obtain contractor-produced plans, studies, data, and support that satisfy Program ESOH needs? (DoD ESOH Risk Mgt Evaluation Criteria)

A-10 ESOH (System Safety) Risk ID/Mgt

A-10.1 Has the PM employed an ESOH risk management program that applies the system safety risk management standard practice methodologies using MIL-STD-882 to identify and control ESOH hazards/risks? (AFI 91-202, 9.3.3.5 and 9.3.5.1; AFMCI 91-202, 2.3.7, 9.2.3, and 9.3.3.5)

A-7.2 Where appropriate, has a System Safety Group and/or ESOH Integration Process Team (IPT) been established, chartered and manned to achieve Program ESOH objectives and requirements and integrate ESOH across disciplines?
(AFI 91-202, 9.3.5.11 and 9.4)

ESOH Programmatic Risk Toolset

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The ESOH PRT Model is linked to ESOH-Acquisition *Lessons Learned*

Provides lessons learned

- Benefits for managing risks
- Burdens for not addressing risks
- At least one lesson for each cross-cutting WBS element
  - Over 70 Army, Navy, AF, NASA, FAA examples
    - Benefits/Savings
    - Burdens/Costs
    - Process Lessons

ESOH Lessons Learned for Systems Acquisition, Version 5.2
Benefits and Savings / Burdens and Costs

This document identifies ESOH lessons learned for system acquisitions. These lessons relate to ESOH considerations and the templates associated with the ESOH Programmatic Risk Toolset (PRT). Lessons are identified and grouped by PRT template titles. Use the following table of contents to navigate to the PRT templates and associated lesson(s).

Table of Contents

Lessons Learned

Example Lesson Learned
HAZMAT Management

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Template:	**HAZMAT Management/P2 – HAZMAT Impact on Demil/Disposal Costs**
Title:	Planning for Demil and Disposal
Process:	HAZMAT Management
Description:	Ground-to-ground missiles were designed containing numerous components with hazardous materials.
Burden/ Cost/ Impact:	The failure to incorporate non-hazardous materials in missile systems greatly increased demilitarization and disposal costs. When the missiles were destroyed to comply with the Intermediate-Range Nuclear Forces Treaty, **disposal of the hazardous materials used in the missile increased program costs by over $100 million**!
Source:	*Environmental Considerations in the Systems Acquisition Process*

Programmatic ESOH Evaluation (PESHE) Templates

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- Three template types based on program size
- Provides instructions and outline for PESHE
- Documents ESOH risk management approach/strategy
- Summary of ESOH risk/hazard data
- Documents NEPA Compliance

DoDI 5000.02 PESHE	
ESOH risk mgt approach	NEPA Schedule
Strategy for integrating ESOH considerations into SE	Identification/status of ESOH risks/ mitigations

PESHE transitions from ESOH strategy to a synopsis of residual risk and mitigation measures

PESHE Structure

Our Suggested Approach

Executive Summary
Chapter 1 PESHE Introduction and Program Information
Chapter 2 Approach for Integrating ESOH into SE
Chapter 3 ESOH Risk Management Approach
Chapter 4 Regulatory Compliance Processes
Chapter 5 Hazardous Material Management Approach
Appendix A – Hazardous Material Use Summary
Appendix B – National Environmental Policy Act Schedule
Appendix C – ESOH Risk Summary

- **System Info in Chapter 1 … help put ESOH info in context**
- **Planning info in Chapters 2-5 … the Program's ESOH Risk Mgt Plan**
  - **Stable information**
- **Risk info in Appendices**
  - **Dynamic data**
  - **Update when changes occur … the "living document"**

ASC PESHE Checklist

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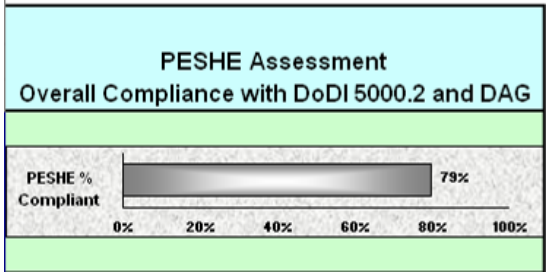
- **Simple MS Excel Tool -- 24 Questions**
- **Provides a quick check on ESOH planning and integration – for milestone reviews**
  - **Program ESOH Responsibilities**
  - **Acquisition Strategy, Contract Documents**
  - **SE, T&E, Demil & Disposal Integration**
  - **ESOH Risk Management,**
  - **NEPA Compliance,**
  - **HAZMAT Management**
  - **Based on AFI 63-101, AFI 63-1201, DoDI 5000.02, Def Acquisition Guidebook**

PESHE assertions should be traceable to acquisition and contract documents

(Pgm Name)
Programmatic Environment, Safety and Occupational Health Evaluation (PESHE) Scorecard

Category	Percent Compliant	Assessment
Program Office Activities	71%	Y
PESHE Management	100%	G
Acquisition Strategy Integration	43%	R
Systems Engineering Integration	100%	G
ESOH Risk Management	88%	G
NEPA Compliance Schedule	90%	G
HAZMAT Management	75%	Y



DoD Milestone Review PESHE Assessment

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DUSD(I&E) *Programmatic ESOH Evaluation Review Checklist*

Program	RECAPITALIZATION PROGRAM	**Doc. Date**	26AUG2009	Supports MS C OVERALL RED - Fails to describe the Program Office's "hybrid" System Safety process for managing ESOH risks. Does not include any specific information on known ESOH risks. Only describes what the Program Office plans to do, not what it has done.
Reviewer	DUSD(I&E)	**Review Date**	14SEP2009	
System Description	airframe with COTS, GOTS, NDI			

Item No.	Review Criteria	Citation	PESHE paragraph	Comments
			GLOBAL - RED	The document is written almost exclusively in the future tense, describing what the Program will do to manage ESOH risks. The PESHE for a MS C program should describe how the Program Office is actively managing ESOH risks as part of the Systems Engineering process and document completed hazard analyses and risk assessments.
1	Strategy for integrating ESOH considerations into the systems engineering process.	DoDI 5000.02, E12.6 DAG 4.4.7.1	4.0, 8.3 YELLOW	Indicates that the strategy is in the SEP and SEMP, but fails to provide the detailed description of the strategy that should be in the PESHE. Basic approach seems to be to manage ESOH risks through the XXXX System Safety Working Group, but does not describe how the XXXX RECAP program is organized to integrate ESOH into the SE process.
2	Identification of who is responsible for implementing the ESOH strategy.	DoDI 5000.02, E12.6.a DAG 4.4.7.1	4.1.1 – 4.1.6 GREEN	Provides the basic information, but is written in future tense which which is appropriate for program at Milestone C.
3	Approach to identifying and mitigating ESOH hazards and managing the associated risks in accordance with MIL-STD-882D.	DoDI 5000.02, E12.6.a DAG 4.4.7.1	5.2 – 5.5, 5.7.1 YELLOW	Says risks managed in accordance with the Risk Management and Mitigation Plan. This section lacks a clear description on how ESOH hazards are managed. Does state the program uses MIL-STD-882D methodology; although its unclear whether the environmental engineer uses MIL_STD-882D. Fails to describe the "hybrid" risk management approach described in the program's System Safety Program Plan.
4	Approach to acceptance (and user concurrence) of ESOH risks pursuant to DoD Instruction 5000.02.	DoDI 5000.02, E12.6 DAG 4.4.7.1	5.7.7 YELLOW	Risk acceptance authorities are correct level. Does not address risk acceptance for events such as DT/OT (event risk).

ESOH Circular

- **ASC WNV Support Team**
- **Acquisition Strategy Integration**
- **Sys Engineering Integration**
  - **Sys Engineering Plan & process**
  - **PESHE**
  - **HAZMAT Management**
  - **ASC Pollution Prevention**
  - **ESOH PRT**
- **ASC ESOH Council**

Addresses requirements, responsibilities, resources & lessons learned

National Environmental Policy Act (NEPA) for Acquisition

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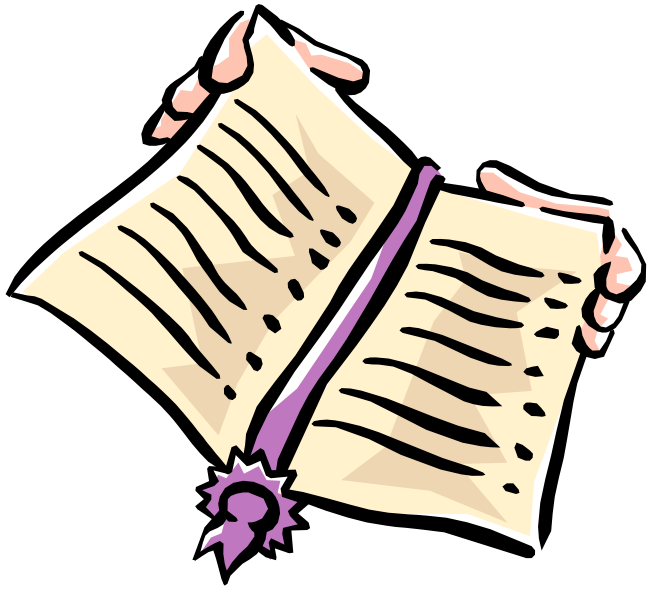
- **NEPA Circular**
  - **Responsibilities for NEPA in ASC**
  - **NEPA Planning Approach (PESHE)**
  - **Example NEPA Compliance Schedule**
- **NEPA Compliance Checklist**
  - **Unique for acquisition**

Title:	**NEPA Compliance – Failure to Consider Abnormal Operation** Forward Area Air Defense System (FAADS) Testing at White Sands Missile Range	
Description:	A drone helicopter being used in the FAADS testing crashed and caused a 5,000-acre range fire. The original environmental analysis did not address the potential for range fires.	
Burden/ Impact:	**Testing was subsequently delayed for two months while an Environmental Assessment was modified which implemented mitigation measures for possible range fires during testing.**	
Source:	Guide to Development of the Programmatic Environment, Safety, and Occupational Health Evaluation (PESHE)	May 04

ESOH Criteria for Pre-award

- ***Integrating Environmental Requirements into System Acquisition Contract Documents***
  - **Briefly describes typical contract documents**
  - **Provides examples or explained inputs**
    - **SOO, SRD, TRD, SOW, Sections L&M**
    - **CDRL and DID examples**



Acquisition ESOH Training

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- ENV 101 – Intro to ESOH in Acquisition
- ENV 110 – ESOH Programmatic Risk Model
- ENV 120 – Developing the PESHE
- Integration of ESOH into System Engineering for Weapon System Acquisition
  - SYS 196* (Complete)
    - Overview
  - SYS 197* (Complete)
    - Material Solutions Analysis – Technology Development
  - SYS 198* (July 2011)
    - Eng Mfg Development – Disposal

*AFIT Distance Learning Courses

ASC ESOH/PESHE Tool Summary

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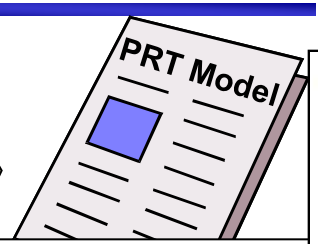
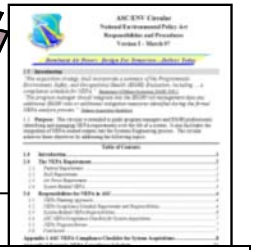


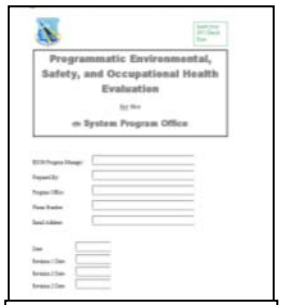
- Pgm Risk ID/Mgr
- Data Repository



NEPA Circular & Checklist

Identify and assess ESOH programmatic risk
– Can serve as ESOH data repository

Help develop the NEPA Compliance Schedule

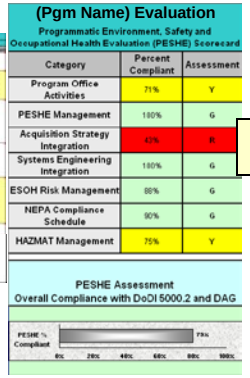


PESHE Template

Provides instructions and structure for the PESHE document
– Addresses DoDI 5000.02 and DAG
– ESOH risk mgt plan and integration
– Risk management tool

Documents Program ESOH risk mgt approach
– ESOH plan and integration
– Risk management actions

PESHE Checklist



Grades PESHE content
– Gauges compliance w/ DoDI 5000.02, DAG, AFI 63-1201
– Provides scorecard by question and major topic

ASC Environmental & Health Risk Mgmt Branch (ASC/WNVV)

Weapon System Environment & Health Risk Footprint

Coatings

Plastics

Sealants

CFC Refrigerants

Engine Emissions

Weapon System Environment & Health Risk Management

Halon/Fire Suppression Agents

Corrosion Control

Hazardous Materials

Industrial Workshop Waste

Paints

Noise

Solvents

Cleaning Materials

ASC/WNVV supports System Acquisition Programs in managing these risks … promoting individual health, & protecting the environment